

Four new species of the genus *Eupithecia* (Geometridae, Larentiinae) from Kashmir and Pakistan

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Abstract Two new species of *Eupithecia* from Kashmir, *emikoe* and *aspectabilis*, and two new species of the same genus from Pakistan, *emittens* and *subolivacea*, are described, and moths and genitalia of both sexes are illustrated.

Key words *Eupithecia*, abdominal plate, cornutus (cornuti), Kashmir, Pakistan.

In writing this paper I express my gratitude to Dr J. Plante, Martigny, Switzerland, and to Mr H. Yoshimoto, Tokyo, Japan, for their kind gift of specimens of the new species described below.

Eupithecia emikoe sp. nov. (Figs 1, 2)

Similar to *E. intricata* (Zetterstedt) (Anonym, 1981: 16, pl. 1: 15; pl. 9: 3; pl. 14: 14) from Europe and *E. fuscoferruginea* Inoue, 1987: 239, figs 63F, 65A, B, from Nepal.

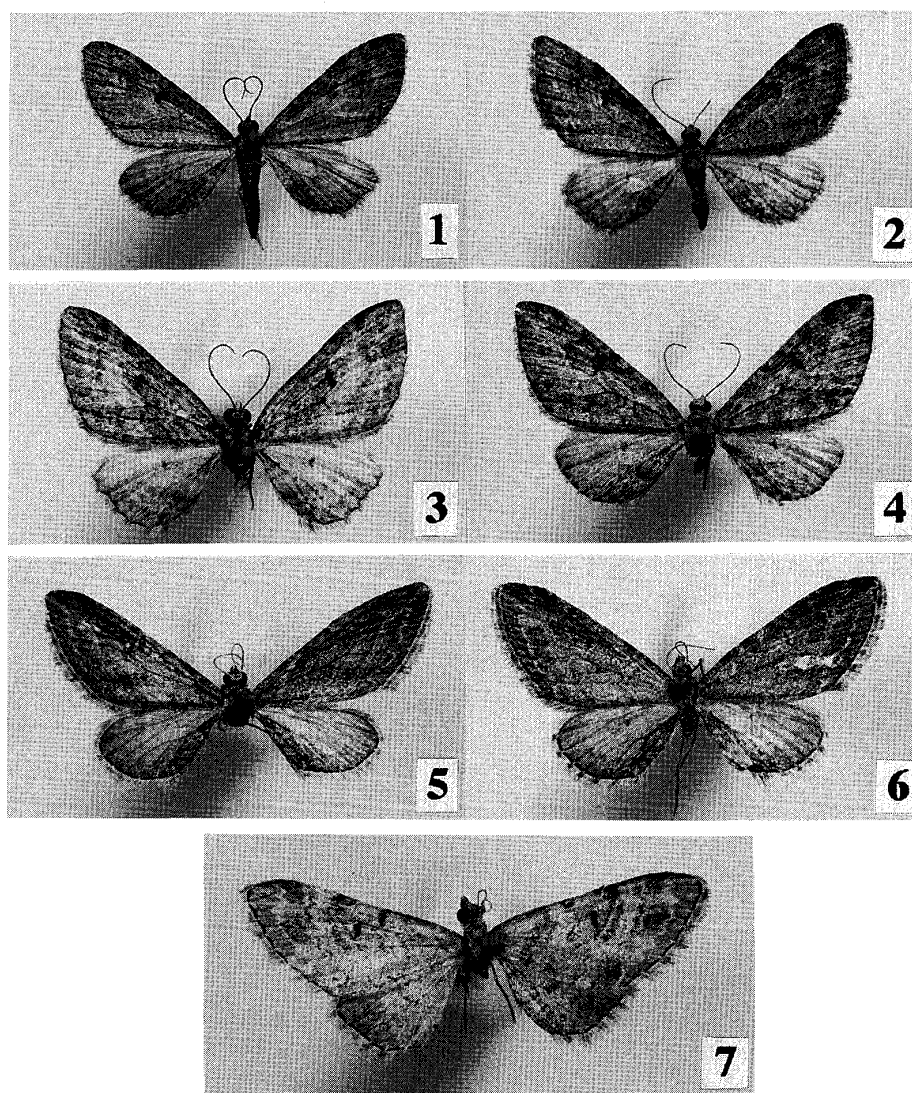
Male and female. Palpus about twice length of diameter of eye, face fuscous brown, sparsely mixed with whitish scales, antenna in male shortly ciliated, length of ciliae about as long as breadth of shaft, in female about one-half. Thorax and abdomen above nearly concolorous with forewing. Forewing nearly identical with *fuscoferruginea* in the shape and coloration, but darker, less reddish. Transverse lines obscure, only the postmedian series of lines well-visible, discal black spot small but conspicuous, subterminal white line slender, zigzag. Termen fuscous brown, fringe dark grey, posterior half whitish. Hindwing whitish, light brownish along hindmargin. Fringe more whitish than on forewing. Under surface similar to *fuscoferruginea*, but less reddish. Length of forewing: ♂ and ♀, 9-10 mm. Smaller than *fuscoferruginea*.

Male genitalia (Fig. 8). Uncus sharply pointed, shorter than in *fuscoferruginea*, valva ample as in that species, but apical area narrower, more strongly upcurved, the horn-like cornutus much shorter, without the trigonal plate-like cornutus of *fuscoferruginea*. Abdominal plate (Fig. 8). Rod-like processes much more slender, expanded baseward like *E. subfuscata* (Haworth) from Eurasia.

Female genitalia (Fig. 11). Ovipositor lobes nearly pointed at apex, apophysis posterior is about twice length of apophysis anterioris, ductus bursae very short, continuing to globular corpus bursae, two-thirds of which are densely spined, a band-like sclerite decorated with a few spines running from the entrance of corpus bursae to the middle of the globe, ductus seminalis arising from upper right side.

Holotype, ♂, and paratypes, 5 ♂ 12 ♀: Liddewat, 3,000 m, Pahalgam-Kolohoi, Kashmir, 8-9. viii. 1982 (E. Yoshimoto). Paratypes, 1 ♂ 1 ♀: Narang, 2,500 m, Kangan-Wayul, 16-18. viii. 1982 (H. Yoshimoto).

The name of the species was dedicated to Emiko, Mr Yoshimoto's wife, who assisted her husband in collecting moths in northwestern Kashmir.

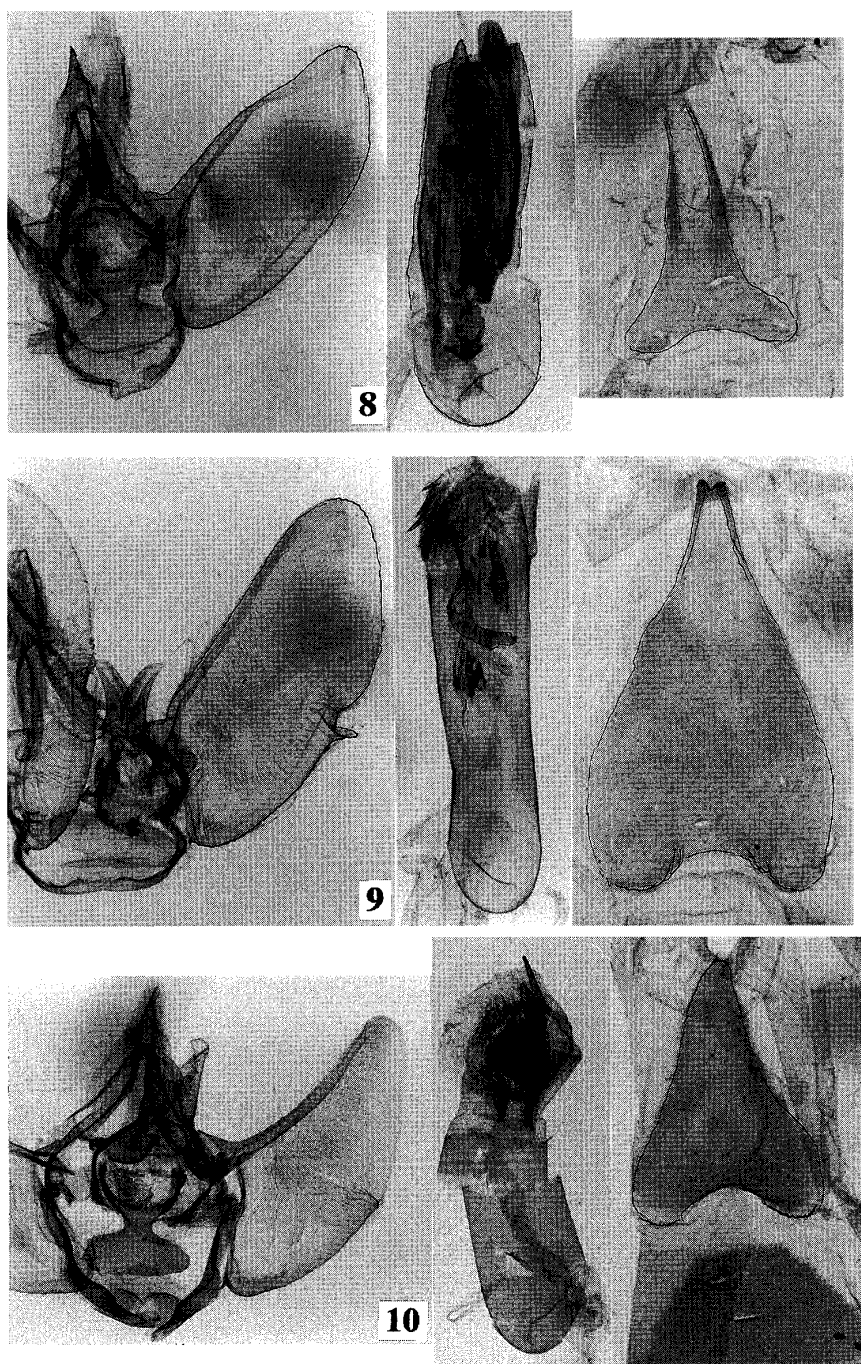


Figs 1-7. *Eupithecia* spp. 1. *E. emikoe* sp. n. Holotype ♂. 2. *Ditto*. Paratype ♀. 3. *E. aspectabilis* sp. n. Holotype ♂. 4. *Ditto*. Paratype ♀. 5. *E. emittens* sp. n. Holotype ♂. 6. *Ditto*. Paratype ♀. 7. *E. subolivacea* sp. n. Holotype ♀.

***Eupithecia aspectabilis* sp. nov.** (Figs 3, 4)

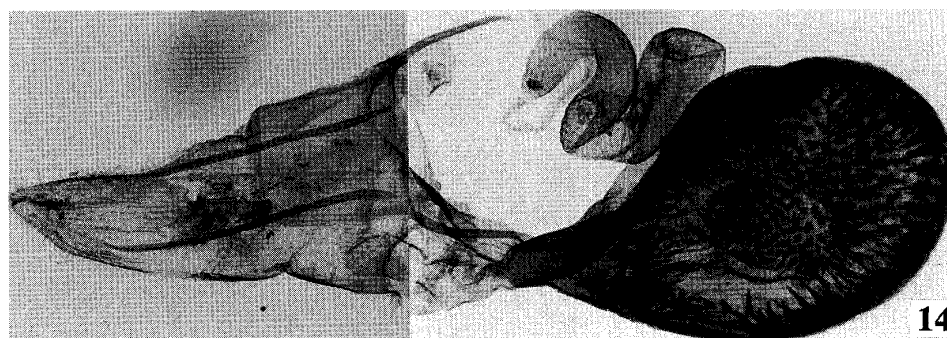
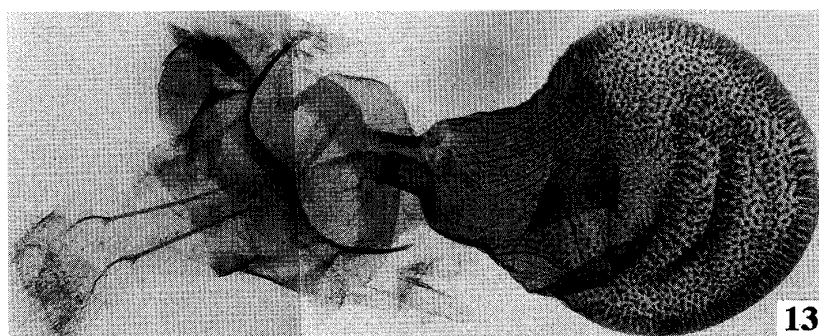
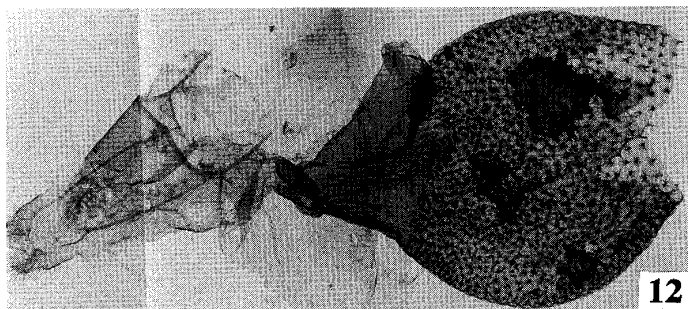
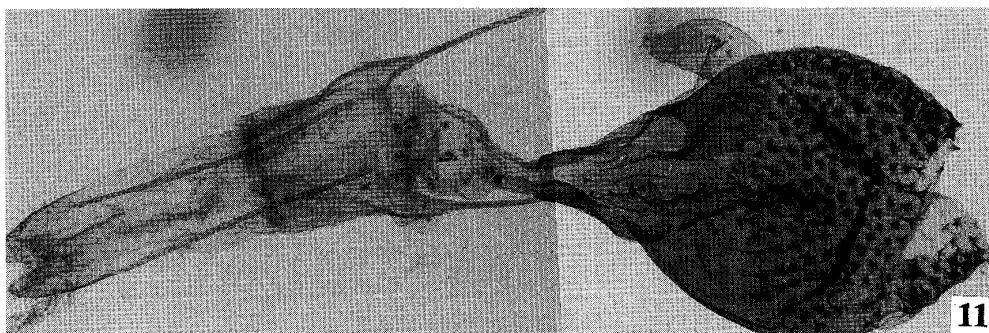
Somewhat similar to *E. egenaria* Herrich-Schäffer (Anonym, 1981 : 15, pl. 2 : 16 ; pl. 8 : 5 ; pl. 14 : 15) from Europe.

Male and female. Palpus in male about the length of diameter of eye, in female about one and half length, face and palpus fuscous, strongly mixed with white scales, antennal ciliation a little over the breadth of shaft in male, in female less than the breadth. Thorax and forewing above grey-brown. Forewing with apex pointed, termen weakly gibbous, antemedian lines angled at subcostal area, postmedian series angled anteriorly, outside of postmedian banded with white, discal spot black, a little elongate, median and terminal areas darker than the rest, whitish subterminal line inconspicuous. Fringe light grey, mixed with fuscous scales. Hindwing much paler, terminal line blackish, posterior half darkened, transverse lines clear, discal blackish dot conspicuous. Under surface much paler, both wings with faint transverse lines and discal spot reproduced. Length of forewing : ♂ and ♀, 11 mm.



Figs 8-10. Male genitalia and abdominal plate of *Eupithecia* spp. 8. *E. emikoe* sp. n. (H. Inoue Slide 14176). 9. *E. aspectabilis* sp. n. (HI Slide 14171). 10. *E. emittens* sp. n. (HI Slide 15822).

Male genitalia (Fig. 9). Uncus sharply pointed, labides slender, tapering, valva ample, at the extension of sacculus the hindmargin emarginated and a sclerotized process developed like *E. lariciata* (Freyer) (Inoue, 1980 : 179, fig. 48B) from Eurasia, cornuti consisting of three band-like sclerotization. Abdominal plate (Fig. 9). Basally expanded, gradually narrowing to apex, apical rods closely approximated and strongly sclerotized at apex.



Figs 11-14. Female genitalia of *Eupithecia* spp. 11. *E. emikoe* sp. n. (HI Slide 14186).
 12. *E. aspectabilis* sp. n. (HI Slide 14172). 13. *E. emittens* sp. n. (HI Slide 15825). 14.
E. subolivacea sp. n. (HI Slide 15824).

Female genitalia (Fig. 12). Ovipositor lobes rounded, apophysis anterioris less than half length of apophysis posterioris, ostium bursae funnel-shaped, ductus bursae very short, corpus bursae globular, densely spined all over, excepting a narrowly striped area connecting ductus bursae, ductus seminalis arising from right shoulder.

Holotype, ♂ : Aru, 2,800 m, Pahalgam-Kolohoi, Kashmir, 10. viii. 1982 (H. Yoshimoto).
 Paratype, 1 ♀ : Naranag, 2,500 m, Kangan-Wayul, Kashmir, 16-18. viii. 1982 (H. Yoshimoto).

***Eupithecia emittens* sp. nov.** (Figs 5, 6)

Male and female. Palpus in both sexes nearly one and half length of diameter of eye, antennal ciliation in male less than the breadth of shaft, palpus, face and thorax above fuscous, strongly mixed with white scales. Forewing elongate, apex bluntly pointed, termen strongly oblique, very weakly convex at middle. The ground colour ashy grey-brown, fine transverse lines oblique, parallel with termen, and numerous blackish and whitish lines between antemedian and median lines, the outer median acute-angled at black discal bar, postmedian acute-angled, then straight to dorsum two-thirds from base, outside of it narrowly whitish, subterminal whitish line zigzag, fine. Termen fuscous, interrupted by whitish spots at the end of veins, fringe whitish at basal one-third, the remaining area dark grey. Hindwing with terminal and hindmarginal area ashy brown, the remaining area whitish, termen and fringe nearly as on forewing, but the latter more whitish. Under surface much whiter, transverse lines faintly reproduced in distal and costal area of forewing and almost whole area of hindwing, discal bar of forewing nearly as on above, that of hindwing indicated by a minute dot. Length of forewing: ♂ and ♀, 11–12 mm.

Male genitalia (Fig. 10). Uncus rather short, sharply pointed, labides broad, apical area flat, valva with gently curved costa, sacculus well-marked, very weakly protuberant at tip, apical area of valva narrow, apex rounded, cornutus a small spine-like and two stick-like sclerotizations on vesica. Abdominal plate (Fig. 10). Abdominal sternites and tergites finely tinted with reddish-brown. Eighth sternite as clear as the other segments, basally expanded, gradually narrowing toward apex, without rod-like processes.

Female genitalia (Fig. 13). Ovipositor lobes small, roundish, apophysis anterioris about half length of apophysis posterioris, lamella antevaginalis a large granulate plate, both sides gently rounded, globular corpus bursae finely spinulose, upper (or caudal) area narrow, membranous, striated, ductus seminalis arising from dorsal right side at the end of membranous portion.

Holotype, ♂, and paratypes, 4 ♀: 17 km Nord de Skardu, 2,200 m, Route de Shigar, Baltistan, Pakistan, 18. x. 1989 (F. Aulombard & J. Plante). Paratype, 1 ♀: 3 km S of Gulmit, 2,450 m, Road to Khuiuerab Pass, Gilgit, Pakistan, 18. viii. 1990 (F. Aulombard & J. Plante).

From the shape and pattern of forewing this new species is somewhat similar to *E. innotata* (Hufnagel) from Europe and Central Asia and probably closest to *E. chalicophila* Wehrli, 1926, from Spain and Morocco, see Vojnits, 1984: 220, fig. 1. However, from *chalicophila* it is distinguished by the following points: the apex of valva not pointed and the abdominal plate much less elongate.

***Eupithecia subolivacea* sp. nov.** (Fig. 7)

Female. Palpus twice as long as diameter of eye, palpus, face and thorax above ashy white, ventral margin of face strongly mixed with grey-brown scales. Wings elongate, but ampler than the preceding species, forewing with apex blunt, termen oblique, weakly convex at middle; pale olive-green. Forewing with a double antemedian lines, the outer one starting from a blackish spot at costa, postmedian double lines, the inner one thicker and starting from a blackish mark at costa, discal black bar conspicuous, outside of postmedian lines banded with whitish, subterminal whitish line incurved in subcostal area, zigzag there but smoother posteriorly, terminal line blackish, fine, interrupted by pale dots on veins. Fringe whitish at base, but spotted with greyish at extension of

veins, the remaining area dark grey. Hindwing similarly marked, but discal bar weaker. Under surface paler, outer postmedian line and pale band conspicuous on both wings, discal mark on forewing weaker, that on hindwing very small but conspicuous. Length of forewing: ♀, 12 mm.

Female genitalia (Fig. 14). Ovipositor lobes narrowed at tips, apophysis thick and long, apophysis anterioris one-third length of apophysis posterioris, from funnel-shaped membranous ostium bursae continuing to corpus bursae, the right side of which is strongly sclerotized and the band-like sclerotization continuing to below middle, swollen at the end, corpus bursae ovate, densely covered with spines, ductus seminalis arising from right dorsal side near the entrance of bursa.

Holotype, ♀: Gilgit, 1,600 m, Pakistan, 17. vii. 1990 (F. Aulombard & J. Plante).

The shape of the female genitalia is similar to that of *E. tripunctaria* Herrich-Schäffer (Inoue, 1980, fig. 45B; Anonym, 1981, pl. 15: 7) from Eurasia, but the band-like sclerotization extended to the middle of corpus bursae at right side is characteristic.

All the type series will be deposited to The Natural History Museum, London, after publication of this paper.

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摘 要

カシミールとパキスタンからの *Eupithecia* 属 (シャクガ科) の4新種の記載 (井上 寛)

カシミールから *E. emikoe* と *E. aspectabilis*, パキスタンから *E. emittens* と *E. subolivacea* という4新種を記載した。

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